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PATENT
Attorney Docket No. 5725.0429-00
Customer No. 22,852

#25
4-22-03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Marie-Pascale AUDOUSSET

Application No. 09/335,742

Group Art Unit: 1751

Originally filed: June 18, 1999

Examiner: M. Einsmann

CPA Filed: April 10, 2001

For: DYE COMPOSITION CONTAINING
1,3-BIS(2,5-DIAMINOPHENOXY)-3,6-
DIOXAOCANE, AN ADDITIONAL
OXIDATION BASE AND A COUPLER
AND DYEING PROCESS

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

DECLARATION UNDER 37 C.F.R. 1.132

I, Marie-Pascale AUDOUSSET, declare and state that:

1. I am a French citizen, residing at 1 Allée Louis Juvet, 92600 Asnieres, France.
2. I have been awarded a degree in Chemical Engineering from the École Nationale Supérieure de Chimie de Paris, and am a Doctor in Organic Chemistry.
3. I have been employed by L'ORÉAL since 1986 and I am presently a Laboratory Supervisor of the hair dyeing research laboratory at L'ORÉAL. During my employment at L'ORÉAL, I have been engaged in research and development regarding hair dyeing.
4. I am the inventor of the above-identified application.

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5. Given my education and experience, particularly in the area of hair dyeing, I consider myself able to provide the following testimony based on experiments conducted by me or under my direct supervision.

COMPARATIVE TESTING

6. Comparative testing was performed with inventive compositions 1, 2, and 3, and comparative compositions 4, 5, and 6.

I. Compositions

The formulations of compositions 1-6 are summarized in Table 1, below. Inventive compositions 1-3 include additional oxidation bases paraphenylenediamine, N,N-bis(2-hydroxyethyl) paraphenylenediamine monohydrate sulfate, and 2-(2'-hydroxyethyl) paraphenylene diamine dichlorhydrate, respectively. Each of comparative compositions 4-6 include an additional base not in accordance with the invention.

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Table 1

COMPOSITIONS	1 (inv)	2 (inv)	3 (inv)	4 (comp.)	5 (comp.)	6 (comp.)
1,8-bis-(2,5-diaminophenoxy)-3,5-dioxaoctane, tetrachlorhydrate, monohydrate	0.39	0.39	0.39	0.39	0.39	0.39
5-N-(β-hydroxyethyl)amino 2-methyl phenol (coupler)	0.5	0.5	0.5	0.5	0.5	0.5
Paraphenylenediamine (additional oxidation base)	0.16	-	-	-	-	-
N,N-bis(β-hydroxyethyl) paraphenylenediamine monohydrate sulfate (additional oxidation base)	-	0.47	-	-	-	-
2-(β-hydroxyethyl) paraphenylene diamine dichlorohydrate (additional oxidation base)	-	-	0.675	-	-	-
1-methoxy-2,5-diamino benzene dichlorohydrate (additional oxidation base)	-	-	-	0.32	-	-
2-methyl 4-amino phenol (additional oxidation base)	-	-	-	-	0.18	-
Orthoaminophenol (additional oxidation base)	-	-	-	-	-	0.16
Dyeing medium	(*)	(*)	(*)	(*)	(*)	(*)
Water q.s.p.	100 g	100 g	100 g	100 g	100 g	100 g

(*) DYEING CARRIER (*)

- Polyglycerolated oleyl alcohol containing 2 mol of glycerol	4.0	g
- Polyglycerolated oleyl alcohol containing 4 mol of glycerol (78% of AM)	5.7	g AM
- Oleic acid	3.0	g
- Oleyl amine containing 2 mol of ethylene oxide sold under the name ETHOMEEN O12 by the company AKZO	7.0	g
- Diethylaminopropyl laurylaminosuccinamate sodium salt containing 55% of AM	3.0	g AM
- Oleyl alcohol	5.0	g
- Oleic acid dioethanolamide	12.0	g
- Propylene glycol	3.5	g
- Ethyl alcohol	7.0	g
- Dipropylene glycol	0.5	g
- Propylene glycol monomethyl ether	9.0	g
- Sodium metabisulphite in aqueous solution containing 35% of AM	0.455	g AM
- Ammonium acetate	0.8	g
- Antioxidant, sequestering agent	q.s.	
- Fragrance, preserving agent	q.s.	
- Aqueous ammonia containing 20% of NH ₃	10.0	

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II. Dyeing Process

At the time of use, each of the above compositions was mixed, weight for weight, with a 20 volume hydrogen peroxide solution having a pH of 3.

Each of the resulting mixtures was then applied onto locks of permed hair containing 90% of white hair. After 30 minutes, the hair was then rinsed with water, washed with a standard shampoo, rinsed again and dried.

III. Tests

After dyeing, the colored locks were exposed under a Xenon lamp emitting a UV radiation between 300 and 380 nm with a device of the type XENOTEST 150S (ATLAS). The locks were irradiated for 40 hours at radiations ranging from 300 to 800 nm, equivalent to sun power of 1250 W/m². The relative humidity level was 60%. The color of the locks was measured before and after the sun test.

IV. Color Determination

The color of the hair was determined by using the L*a*b* system, with a MINOLTA CM2002 © spectrophotometer.

According to this system, L* indicates the lightness. The most intense lightness value is the color of the dyed hair. The chromaticity coordinates are expressed by the parameters a* and b*, a* indicating the axis of red/green shades and b* the axis of yellow/blue shades. ΔE, which is the color variation between a colored lock and a colored lock after the suntest, is obtained from the following formula:

$$\Delta E = \sqrt{(L^* - L_0^*)^2 + (a^* - a_0^*)^2 + (b^* - b_0^*)^2}$$

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wherein L^* indicates lightness, a^* and b^* are the chromaticity coordinates of the colored locks after the suntest, L_0^* indicates the lightness, and a_0^* and b_0^* are the chromaticity of the colored locks before the suntest. The lower the value of ΔE , the more resistant is the color of the dyed hair. These results are summarized in Table II, below.

Table II

Examples	Color before the suntest xenotest			Color after the suntest xenotest			Color fading
	L^*	A^*	b^*	L^*	a^*	b^*	ΔE
1	20.6	7.1	-2.9	21.9	8.1	-1.7	2.0
2	19.4	5.3	-6.5	20.7	6.2	-6.1	1.6
3	21.7	7.9	-2.9	23.5	9.3	-1.4	2.7
4	20.4	7	-5.4	23.8	7.9	-3.7	4.0
5	29	12.3	0.8	33.4	11.5	4	5.5
6	25.7	8.2	-3	30.4	9.1	0.3	5.8

As can be seen from Table II, hair dyed with inventive compositions 1-3 shows a much smaller variation in color after the suntest compared to hair dyed with comparative compositions 4-6. These significantly superior results were surprising and unexpected.

Accordingly, these examples show that the color of hair dyed with compositions according to the invention (1, 2 and 3) is unexpectedly more resistant to prolonged exposure to uv radiation than the color of hair dyed with the comparative compositions (4, 5 and 6) and are thus superior thereover.

7. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under

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Section 1001 of Title 18 of the United States Code, and that such will
statements may jeopardize the validity of the application or any pat

Date: 04.15.03

By: Marie-Pascale Audoussert

*Marie-Pascale
Audoussert*